

WILDLIFE

INTRODUCTION

The development of Hawthorne has created a suburban/urban community, eliminating most of the native habitat and reducing the ability of much of the original wildlife to successfully live within the town and greater region. However, there are wildlife species that adapt to the altered environment and flourish under these conditions. By understanding the pre-European settlement vegetation and habitat, one can predict what species of wildlife would have existed in this area.

GEOGRAPHIC REGION

New Jersey's ecosystems are among the most complex and diverse in the nation (Pettigrew 1998). Hawthorne, a suburban northern New Jersey community is located within a unique ecological setting (Pettigrew 1998). This region is an ecotone, an overlap or transition zone between ecosystems, creating a dynamic overlap between northern and southern species. Northern New Jersey is an ecosystem crossroads the southern limit for northern species, and the most northern limit for southern species. The climate and soils of an area dictate the plant life and the variety of habitats produced, which then determine which species can survive in an area. Based upon the Passaic County Soils Map, the species that might have been found in Hawthorne include various wetland and water-habitat organisms along with openland and woodland creatures (**Table 6**) (Seglin 1975).

HABITAT FRAGMENTATION

European settlement began the process of habitat fragmentation, which leads to a loss of species diversity (Mitchell 1992). Hawthorne's land use and development has altered the habitat that would normally support larger species, such as, the white-tailed deer, bobcat, and coyote. We can frequently find a greater abundance of "edge" species when large areas of land are fragmented partially due to increased temperature, decreased soil moisture, and decreased relative humidity at the edge of the fragment (Mitchell 1992). These fragments become "islands" or pockets of forest or natural areas. Many species require large areas to hunt or breed, and are unable to survive in areas of less than 450 contiguous acres. Other limitations of urban environments for many species include toxic substances, automobiles, domestic pets, and some of the trappings of society, such as, overhead wires (Adams 1994). The loss of habitats, food, refuge, and space are probably of greater importance in many cases.

TERRESTRIAL SPECIES

Prior to the impacts of man, the area that is now Hawthorne would have had several different ecosystems, able to support a diverse number of species. Wetland species would have been able to thrive along the Passaic River and Goffle Brook, while much of the rest of the town would have been meadow or forest. The ridge of the First Watchung would have supported wildlife adapted to surviving on the windswept, barren slopes. Typical wetland species might have been ducks, geese, rails, herons and muskrats (Seglin 1975). Animals that might have been found in Hawthorne's forests would have been red and gray squirrel, gray fox, white-tailed deer, and raccoon. Mammals found on the First Watchung would probably have included the eastern gray squirrel, eastern

chipmunk, and possibly short-tailed shrew, long-tailed weasel, and gray fox (Godfrey 1980). Other species that might have been found in Hawthorne are animals typical of the Piedmont geologic province (**Table 7**).

Although species diversity may diminish due to urbanization and fragmentation, some species will adapt and flourish. Non-native species tend to survive in urban settings better than native species (Adams 1994). At least for bird species, it appears that generalists (able to use a wide range of food and habitat types) account for many of the species in an urban community, while specialists (restricted in either food or habitat choices) require a more natural habitat.

Some animals are so proficient at living in close proximity to man that they have become “pests”. In many New Jersey communities, including Hawthorne, Canada geese are thriving due to factors such as human supplemental feeding, grazing areas surrounding lakes and ponds, lower predation casualties, and higher urban temperatures. The populations of these waterfowl are having a detrimental effect on water quality in Hawthorne (Sebetich, pers. comm. 2000). Chipmunks and squirrels are able to survive in urban/suburban areas, although predation from domestic cats may reduce the numbers of chipmunks (Adams 1994). There are known examples of white-tailed deer populations surviving in urban/suburban areas such as Princeton, New Jersey, and white-tailed deer have been observed in Hawthorne by residents (Maene, pers. comm. 2000).

Small and medium-sized predators, such as shrews and moles may be found in suburban areas, in yards, and other open spaces. A few species of bats will utilize attics of houses or other buildings as roosting sites (Adams 1994). It should be remembered that almost all bats are beneficial to people, and are frequently insectivorous (Adams 1994). Human residences may provide food for some species able to forage through refuse. Raccoons would be a prime example of a refuse scavenger. Raccoons will make their homes in tree cavities, but have also utilized such human infrastructures as underground storm sewer systems for cover.

As Hawthorne is located within the boundary of Passaic County, a list of rare invertebrate species in Passaic County (**Table 8**) (NJ Natural Heritage, 2000) and vertebrates (**Table 9**) (NJ Natural Heritage, 2000) are important components of wildlife diversity in Hawthorne. Many species are small. Both Goffle Brook and the Passaic River are possible habitats for these species.

BIRD SPECIES

Quite a few bird species have been identified in the Eight-Acre Woods and Goffle Brook Park by resident bird-watchers in Hawthorne. Some of the observed species may only stay in Hawthorne for a matter of days or hours while they are migrating, and should not be considered residents. The most interesting incident according to Maene (personal communication 2000) was the sighting in 1990 of three immature white ibis in Eight-Acre Woods/Goffle Brook Park. Hawthorne is outside the normal range for these birds, which are a more southern species.

The personal observations by these bird-watchers seems to indicate that songbird diversity has been decreasing (Maene, pers. comm. 2000). According to the records kept by these residents, taken during the World Series of Birding (a 48 hour contest which occurs the 2nd week-end in May), in 1997 Hawthorne had 70 species of songbirds;

in 1998 there were only 60 species of songbird and in 1999 only 50 species were observed. The loss of vegetation and variety of species of trees in Eight-Acre Woods and Goffle Brook Park may be the cause. A cutting and replanting project in Hawthorne appears to have reduced the populations of some species of birds, while other species increased. According to the personal observation of several bird-watchers in Hawthorne, there are fewer warblers since the cutting in Eight-Acre Woods, except for yellow warblers, which have increased and are nesting in the area (Maene pers. comm. 2000). Yellow warblers prefer more open space as they build nests in low bushes (N.J. Audubon personal communication 2000), and the cutting may have provided suitable habitats for this species of warbler, while removing necessary habitat for other species of warblers. Numbers of migratory birds that feed on insects would also be expected to decline due to an initial loss of canopy.

Other birds that have been observed are: red-tailed hawks, turkey vultures, blue herons, green herons, thrushes, vireos (although less frequently), five different species of woodpeckers, yellow-bellied sapsuckers in October; juncos and white-throated sparrows in winter; warblers in May; and king-fishers in summer (Maene personal communication 2000). When flooding occurs in the Goffle Brook adjacent to Hawthorne High School black-crowned night herons and other wading birds, such as sandpipers may be seen (Maene personal communication 2000). Underneath the Diamond Bridge Avenue Bridge over the Goffle Brook, there are nesting barn swallows (Hildebrand 1998, Maene, personal communication 2000). The barn swallows appear to be increasing in numbers, as the number of nests has grown from five to eight during 1999. A 1983 Christmas bird count for Hackensack-Ridgewood, New Jersey (**Table 10**) (Heilbrun 1983) lists many of the same birds as indicated as being seen in Hawthorne (Hildebrand, 1998).

FISH SPECIES

Fish species found in the Borough of Hawthorne reside in two waterways: Goffle Brook, and the Passaic River. Goffle Brook has been sporadically sampled (**Table 11**) (Sebetich 2009) and does provide habitat for some species of fish. As the sampling was not thorough, more species may reside in Goffle Brook than are listed. The Passaic River was considered highly toxic to fish for much of the Twentieth Century, but is now slowly beginning to see a return of native fish species including anadromous species as its quality improves (**Table 12**) (Papson, pers. comm. 2000). The anadromous fish, species whose life cycle contains freshwater and salt-water stages are extremely sensitive to pollution and when spawning will avoid a polluted river system. Recently, several anadromous species including shad and striped bass have been spotted below the Dundee Dam, indicating significant water quality improvement, as these species were absent from the river for many years (Papson, Pers. comm. 2000).

Table 6. Wildlife habitat that could be supported by soil types found in Hawthorne. Data modified from Passaic County Soil Survey. Ratings are 1=good, 2=fair, 3=poor, 4=very poor.

Soil Type	Habitat		
	Openland	Woodland	Wetland
Alluvial (Ae)	2	2	2
Boonton (BrB, BrC and BsD)	2	1	4
Haledon (HcC)	3	2	4
Haledon, wet variant (HdA)	3	2	2
Haledon, wet variant (HdB)	3	2	4
Holyoke (HrC)	2	3	4
Preakness (Px)	2	2	2
Riverhead (RhB and RhC)	1	1	4
Rockoutcrop (RwE)	4	4	4
Urban land (UbB, UbC and UrB)	Urban lands are too variable to be rated		

Table 7. Animal Species common to the Piedmont Geologic Province. Data from Dorham Associate, Inc. 1984.

Common Name	Scientific Name
Black Bear	<i>Ursus americanus</i>
Bobcat	<i>Felix rufus</i>
Cottontail rabbit	<i>Sylvilagus floridanus</i>
Eastern chipmunk	<i>Tamias striatus</i>
Eastern mole	<i>Scalopus aquaticus</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Long tailed weasel	<i>Mustela frenata</i>
Masked shrew	<i>Sorex cinereus</i>
Meadow jumping mouse	<i>Zapus hudsonius</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Mink	<i>Mustela vison</i>
Muskrat	<i>Ondatra zibethicus</i>
Opossum	<i>Didelphus marsupialis</i>
Raccoon	<i>Procyon lotor</i>
Red fox	<i>Vulpes fulva</i>
Red squirrel	<i>Tamiasciurus hudsonicus</i>
Skunk	<i>Mephitis mephitis</i>
Southern Bog lemming	<i>Synaptomys cooperi</i>
Southern Red-backed vole	<i>Clethrionomys gapperi</i>
White-tailed deer	<i>Odocoileus virginianus</i>

Table 8. Rare invertebrate species of Passaic County. Data from the New Jersey Natural Heritage Database, 2000.

Common Name	Scientific Name
Acadian Hairstreak	<i>Satyrium acadicum</i>
American Burying Beetle	<i>Nicrophorus americanus</i>
Checkered White	<i>Pontia protodice</i>
Columbine Dusky Wing	<i>Erynnis lucilius</i>
Eastern Lampmussel	<i>Lampsilis radiata</i>
Four-Spotted Skimmer	<i>Libellula Quadrimaculata</i>
Frosted Elfin	<i>Incisalia irus</i>
Giant Swallowtail	<i>Papilio cresphontes</i>
Gray Comma	<i>Polygonia progne</i>
Harris' Checkerspot	<i>Chlosyne harrisii</i>
Henry's Elfin	<i>Incisalia henrici</i>
Long Dash	<i>Polites mystic</i>
Mottled Dusky Wing	<i>Erynnis martialis</i>
New England Bluet	<i>Enallagma laterale</i>
Persius Dusky Wing	<i>Erynnis persius persius</i>
Pipevine Swallowtail	<i>Battus philenor</i>
Ringed Boghaunter	<i>Williamsonia linteri</i>
Silver-Bordered Fritillary	<i>Boloria selene myrina</i>
Silvery Checkerspot	<i>Chlosyne nycteis</i>
Southern Grizzled Skipper	<i>Pyrgus wyandot</i>
Triangle floater	<i>Alasmidonta undulata</i>
West Virginia White	<i>Pieris virginiensis</i>

Table 9. Rare vertebrate species in Passaic County. Data from the New Jersey Natural Heritage Database, 2000.

Common Name	Scientific Name
Allegheny Woodrat	<i>Neotoma magister</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Barred Owl	<i>Strix varia</i>
Bobcat	<i>Lynx rufus</i>
Bog Turtle	<i>Clemmys muhlenbergii</i>
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Eastern Small-footed Myotis	<i>Myotis leibii</i>
Marbled Salamander	<i>Ambystoma opacum</i>
Northern Goshawk	<i>Accipiter Gentilis</i>
Northern Cricket Frog	<i>Acris crepitans crepitans</i>
Pied-Billed Grebe	<i>Podilymbus podiceps</i>
Red-Shouldered Hawk	<i>Buteo lineatus</i>
Southern Bog Lemming	<i>Synaptomys cooperi</i>
Timber Rattlesnake	<i>Crotalus horridus horridus</i>
Wood Turtle	<i>Clemmys insculpta</i>

Table 10. 1983 Christmas bird count for Hackensack-Ridgewood, NJ. Data from 83rd Audubon Christmas bird count.

Common Name	Number
American Goldfinch	162
American Kestrel	5
American Robin	193
Belted Kingfisher	3
Black-capped Chickadee	329
Black Duck	123
Blue Jay	292
Brown-headed Cowbird	27
Brown Creeper	5
Bufflehead	5
Canada Goose	2,437
Cardinal	179
Carolina Wren	3
Common Crow	673
Common Flicker	13
Common Goldeneye	12
Common Grackle	239
Common Merganser	1,150
Common Snipe	1
Dark-eyed (Slate-col.) Junco	534
Downy Woodpecker	115
Evening Grosbeak	4
Field Sparrow	51
Fish Crow	6
Fox Sparrow	27
Golden-crowned Kinglet	8
Goshawk	2
Gray Catbird	2
Great Black-backed Gull	89
Great Blue Heron	12
Hairy Woodpecker	13
Hermit Thrush	16
Herring Gull	583
Hooded Merganser	14
House Finch	291
House Sparrow	439
Kildeer	2
Lincoln's Sparrow	1
Mallard	1,457
Mockingbird	55
Mourning Dove	271
Northern Shoveler	75
Pileated Woodpecker	1
Pine Siskin	4
Pintail	2
Purple Finch	28
Red-bellied Woodpecker	2
Red-breasted Merganser	2
Red-breasted Nuthatch	2
Red-tailed hawk	14
Red-winged Blackbird	429
Ring-necked Pheasant	6

Common Name	Number
Ring-billed Gull	1,407
Rock Dove	335
Ruby-crowned Kinglet	5
Ruddy Duck	1
Ruffed Grouse	1
Rusty Blackbird	27
Sharp-shinned Hawk	1
Song Sparrow	403
Starling	2,079
Swamp Sparrow	2
Tree Sparrow	126
Tufted Titmouse	253
White-breasted Nuthatch	96
White-throated Sparrow	126
Winter Wren	1
Wood Duck	4
Yellowbellied Sapsucker	1
Yellow-rumped (Myrtle) Warbler	5

Table 11. Fish sampled in Goffle Brook. Sebetich 2009.

Common Name	Scientific Name
American eel	<i>Anguilla rostrata</i>
Banded killish	<i>Fundulus diaphanus</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Blacknose dace	<i>Rhinichthys atratulus</i>
Bluegill sunfish	<i>Lepomis macrochirus</i>
Brown bullhead	<i>Ictalurus nebulosus</i>
Carp	<i>Cyprinus carpio</i>
Catfish	<i>Siluriformes</i>
Largemouth bass	<i>Micropterus salmoides</i>
Pumpkinseed sunfish	<i>Lepomis gibbosus</i>
Sculpin	<i>Scorpaeniformes</i>
Shiner	<i>Cypriniformes</i>
Tessellated darter	<i>Etheostoma olmstedii</i>
White sucker	<i>Catostomus commersoni</i>

Table 12. Fish sampling of Passaic River, Paterson. FishTrack, Division of Fish & Wildlife - Bureau of Freshwater Fisheries, NJDEP, 2010

Common Name	Scientific Name
American eel	<i>Anguilla rostrata</i>
Banded killfish	<i>Fundulus diaphanus</i>
Bluegill sunfish	<i>Lepomis macrochirus</i>
Carp	<i>Cyprinus carpio</i>
Golden shiner	<i>Notemigonus crysoleucas</i>
Largemouth bass	<i>Micropterus salmoides</i>
Pumpkinseed sunfish	<i>Lepomis gibbosus</i>
White sucker	<i>Catostomus commersoni</i>
Alewife	<i>Alosa pseudoharengus</i>
Gizzard Shad	<i>Dorosoma cepedianum</i>
White Perch	<i>Morone Americana</i>
Goldfish	<i>Carassuis auratus</i>
Blueback Herring	<i>Alosa aestivalis</i>
Brown bullhead	<i>Ameiurus nebulosus</i>
Black crappie	<i>Pomoxis nigromaculatus</i>
Redbreast Sunfish	<i>Lepomis aurtus</i>
Silvery Minnow	<i>Hybognathus amarus</i>
Satin Shinner	<i>Cyprinella analostana</i>